

REMARKS

Claims 4, 7, 20, 23, 35, and 55 are objected to as the Examiner contends that the specification does not disclose the limitation of these claims. Applicants have amended the claims to address the Examiner's concerns.

Claims 7, 23, 35, and 55 are objected to as the Examiner contends that it is not clear how less reflective one or more of the optical reflectors are. Applicants have amended the claims to address the Examiner's concerns.

Claims 1-8, 10, 16-24, 32-36, 38, 42, 53-56, and 62 are rejected under 35 USC §102(b) as being anticipated by Johnson et al., U.S. 6,198,860.

Applicants respectfully traverse the rejection.

Johnson et al. '860 describes an optical waveguide crossing structure having a first waveguide that propagates signals in a first direction. A second waveguide intersects with the first waveguide and propagates signals in a second direction. A photonic crystal crossing region at the intersection of the first and second coplanar waveguides prevents crosstalk between the signals of the first and second waveguides.

However, independent claims 1, 17, 33, and 53 have now been amended to recite that all microcavity waveguides include photonic crystal structures.

Johnson et al. '860 describes an optical waveguide structure having a first waveguide, a second waveguide that intersects with the first waveguide, and a photonic crystal resonator system at the intersection of the first and second waveguides. There is no mention that the first waveguide and second waveguide of Johnson et al. '860 are photonic crystals. Secondly, a

photonic crystal resonator system is placed at the intersection of the first and second waveguides of Johnson et al. '860 to form a passive region used in the routing of light only. The pending independent claims 1, 17, 33, and 53 recite microcavity active regions are formed by overlapping the microcavity waveguides. Therefore, Johnston et al. '860 does not anticipate claims 1, 17, 33, and 53.

As to claims 2-8, 10, 16, 18-24, 32, 34-36, 38, 42, 54-56, and 62, they are dependent on claims 1, 17, 33, and 53, respectively. Therefore, claims 2-8, 10, 16, 18-24, 32, 34-36, 38, 42, 54-56, and 62, they are dependent on claims 1, 17, 33, and 53 are also allowable for the same reasons argued with respect to claims 1, 17, 33, and 53.

Claims 14-15, 30-31, 43-44, and 63-64 are rejected under 35 USC §103 as being unpatentable over Johnson et al. '860 in view of Scherer et al., U.S. 6,711,200.

Scherer et al. '200 describes room temperature lasing from an optically pumped single defect in a two-dimensional photonic bandgap crystal. The high Q optical microcavities are formed by etching an array of air holes into a half wavelength thick multiquantum well waveguide.

Given that claims 14-15, 30-31, 43-44, and 63-64, are dependent on claims 1, 17, 33, and 53, the reasons argued for claim 1, 17, 33, and 53 are also applicable here. Also, Scherer et al. '200 does not address the deficiencies of Johnson et al. '860. Therefore, the proposed combination of Johnson et al. '860 and Scherer et al. '200 does not render obvious claims 1, 17, 33, and 53.

In view of the above amendments and for all the reasons set forth above, the Examiner is respectfully requested to reconsider and withdraw the objections and rejections made under 35 U.S.C. §§ 102 and 103. Accordingly, an early indication of allowability is earnestly solicited.

If the Examiner has any questions regarding matters pending in this application, please feel free to contact the undersigned below.

Respectfully submitted,



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